


# Exhibit 4

**U.S. Patent No. 8,451,237 (“’237 Patent”)**

**Exemplary Accused Product**

The Dell Latitude 7389 notebook<sup>1</sup> (“Dell Latitude 7389”) infringes at least Claim 16 of the ’237 Patent.

Claim 16	Dell Latitude 7389
[pre] A system comprising:	<p>The preamble is not a limitation. To the extent the preamble is construed as a limitation, the Dell Latitude 7389 is a system. For example, the Dell Latitude 7389 is a computer system that has a touchscreen and is compatible with a stylus, such as a Dell Active Pen, as shown below:</p>  <p><a href="https://www.dell.com/en-us/work/shop/dell-laptops-and-notebooks/latitude-7389-2-in-1/spd/latitude-13-7389-2-in-1-laptop">https://www.dell.com/en-us/work/shop/dell-laptops-and-notebooks/latitude-7389-2-in-1/spd/latitude-13-7389-2-in-1-laptop</a> (annotation added).</p>

<sup>1</sup>Unless otherwise indicated, information in this chart is based on teardown analysis performed on behalf of Neodron.

Claim 16


Dell Latitude 7389



Photograph of the Dell Latitude 7389 and Dell Active Pen.

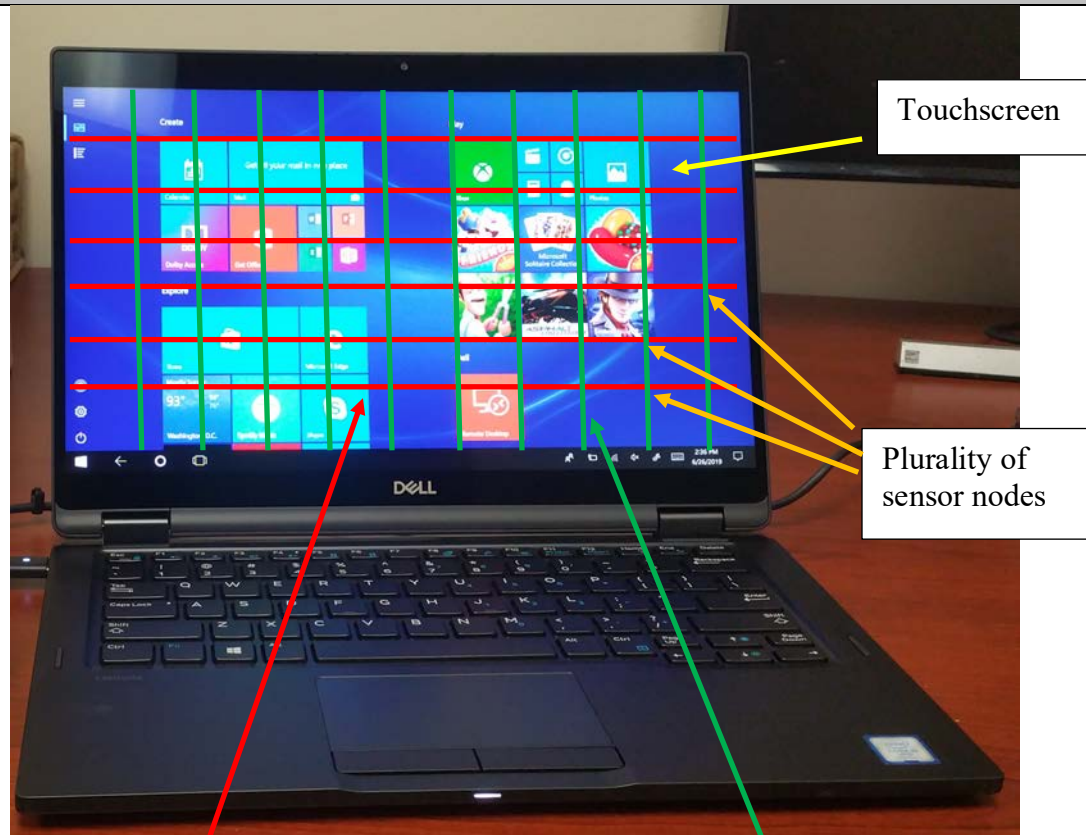


Photograph of the Dell Active Pen.

Claim 16	Dell Latitude 7389
	 <p>Photograph of the Dell Active Pen.</p> <p><i>See, e.g.,</i> <a href="https://www.dell.com/support/article/us/en/04/sln294408/a-guide-to-the-optional-dell-stylus-available-for-use-with-dell-latitude-tablets?lang=en">https://www.dell.com/support/article/us/en/04/sln294408/a-guide-to-the-optional-dell-stylus-available-for-use-with-dell-latitude-tablets?lang=en</a>.</p>
[a] a touchscreen having a plurality of sensor nodes to provide signals from the plurality of nodes about a first touch of an array of touch screen sensor nodes;	The Dell Latitude 7389 has a touchscreen having a plurality of sensor nodes to provide signals from the plurality of nodes about a first touch of an array of touch screen sensor nodes, for example, as shown below.

Claim 16

Dell Latitude 7389



Touchscreen

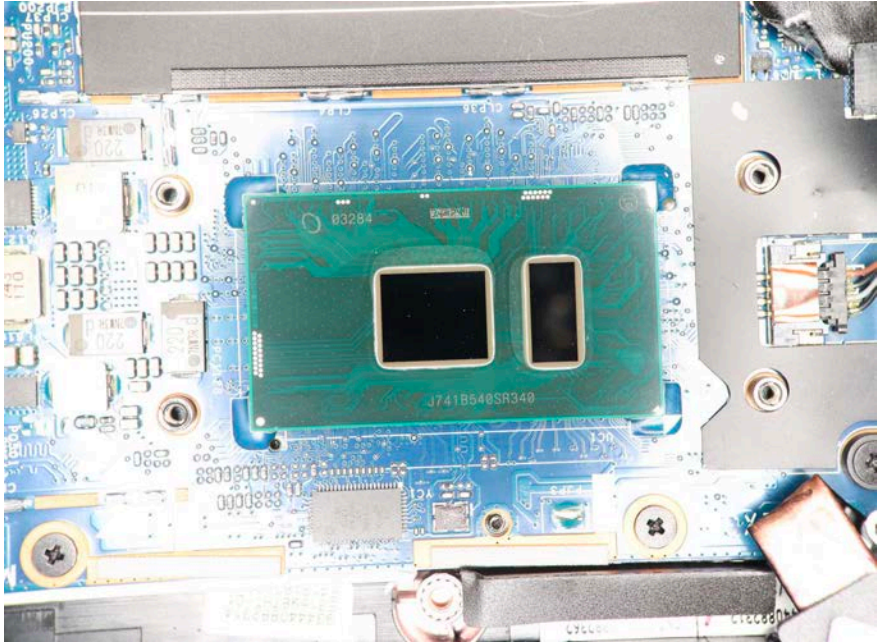
Plurality of  
sensor nodes

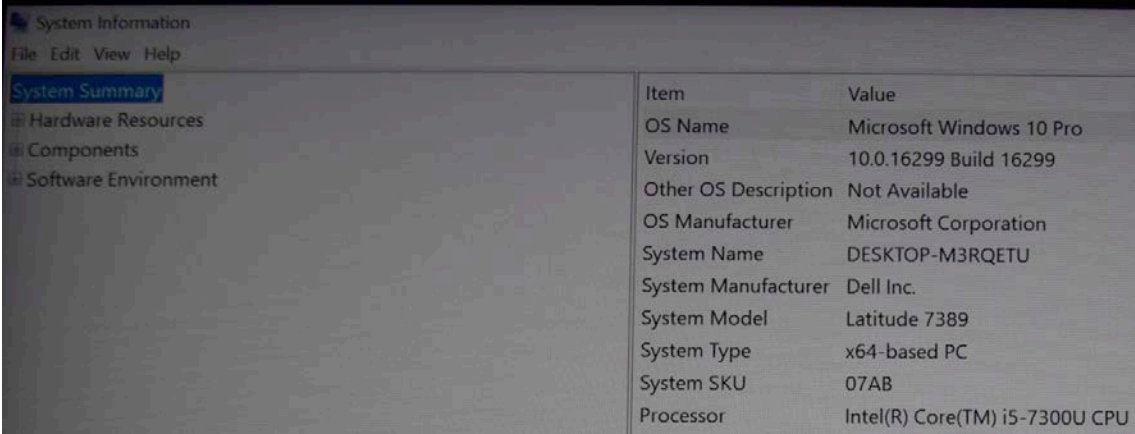
Red lines are a visual  
representation of  
electrodes (not to scale)

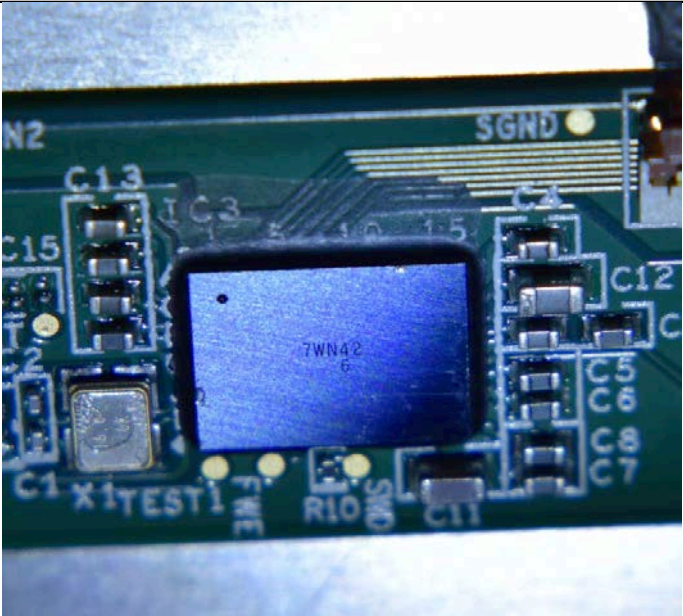
Green lines are a visual  
representation of  
electrodes (not to scale)

Photograph of the Dell Latitude 7389.



Claim 16	Dell Latitude 7389
	<p>For example, the touch screen provides signals from the plurality of nodes about a first touch of an array of touch screen sensor nodes to a touch controller, as shown in limitation [b].</p>
<p>[b] a controller communicatively coupled to the touchscreen sensor nodes,</p>	<p>The Dell Latitude 7389 has a controller communicatively coupled to the touchscreen sensor nodes.</p> <p>For example, the Dell Latitude 7389 has an Intel Core i5-7300U processor that controls, among other things, the device's touch sensing capability:</p>  <p>Photograph of the Dell Latitude 7389's processor.</p>

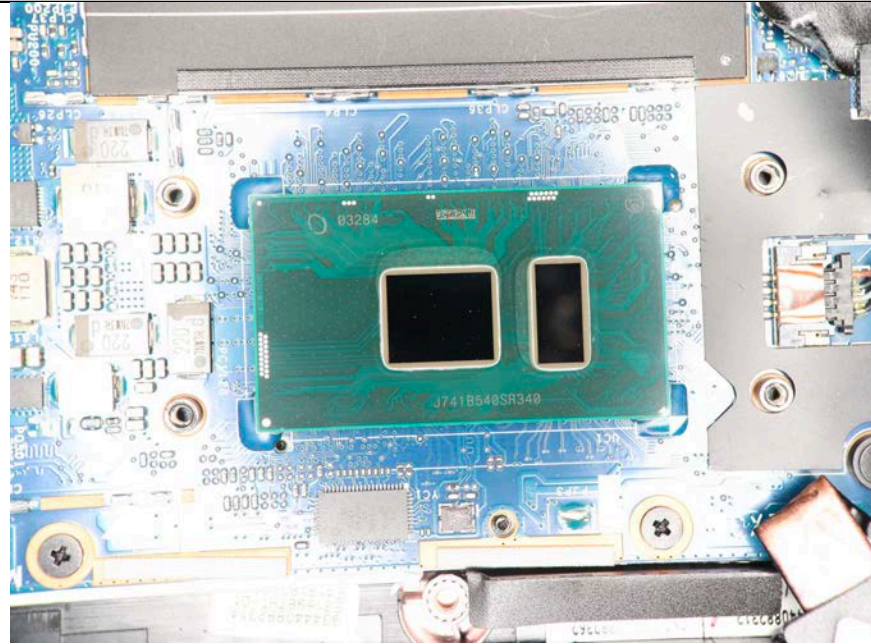
Claim 16	Dell Latitude 7389																						
	 <table border="1"> <thead> <tr> <th>Item</th><th>Value</th></tr> </thead> <tbody> <tr> <td>OS Name</td><td>Microsoft Windows 10 Pro</td></tr> <tr> <td>Version</td><td>10.0.16299 Build 16299</td></tr> <tr> <td>Other OS Description</td><td>Not Available</td></tr> <tr> <td>OS Manufacturer</td><td>Microsoft Corporation</td></tr> <tr> <td>System Name</td><td>DESKTOP-M3RQETU</td></tr> <tr> <td>System Manufacturer</td><td>Dell Inc.</td></tr> <tr> <td>System Model</td><td>Latitude 7389</td></tr> <tr> <td>System Type</td><td>x64-based PC</td></tr> <tr> <td>System SKU</td><td>07AB</td></tr> <tr> <td>Processor</td><td>Intel(R) Core(TM) i5-7300U CPU</td></tr> </tbody> </table> <p>Screenshot of the Dell Latitude 7389's system specifications.</p> <p>For example, the Intel Core i5-7300U processor works in conjunction with the Dell Latitude 7389's touch controller (chip labeled 7WN42 6) to control the device's touchscreen, including performing measurements on signals from the touchscreen's sensor nodes:</p>	Item	Value	OS Name	Microsoft Windows 10 Pro	Version	10.0.16299 Build 16299	Other OS Description	Not Available	OS Manufacturer	Microsoft Corporation	System Name	DESKTOP-M3RQETU	System Manufacturer	Dell Inc.	System Model	Latitude 7389	System Type	x64-based PC	System SKU	07AB	Processor	Intel(R) Core(TM) i5-7300U CPU
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Claim 16	Dell Latitude 7389
	 <p>Photograph of the Dell Latitude 7389's touch controller.</p>
<p>[c] the controller configured to: receive the signals;</p>	<p>The Dell Latitude 7389's controller is configured to receive the signals.</p> <p>For example, the Dell Latitude 7389's processor and/or touch controller are/is configured to receive the signals from the touchscreen, as shown below.</p>

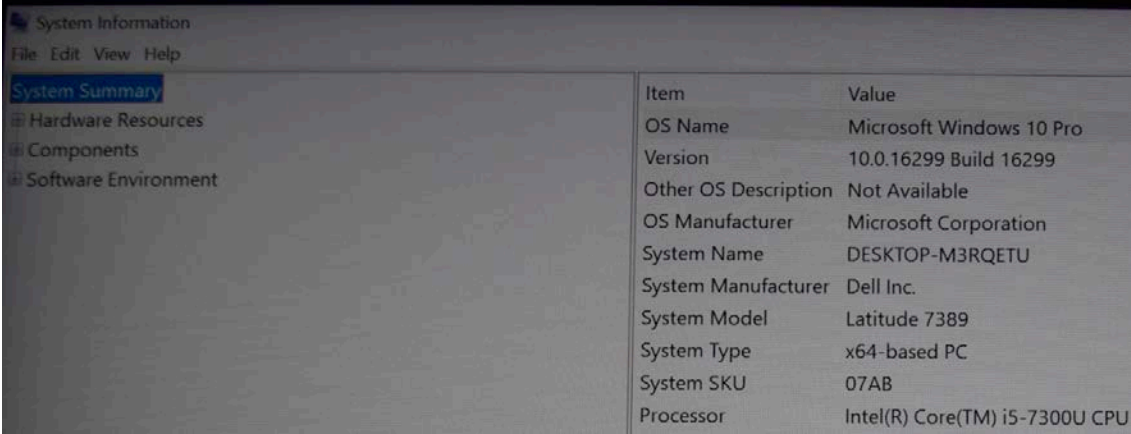


Claim 16

Dell Latitude 7389

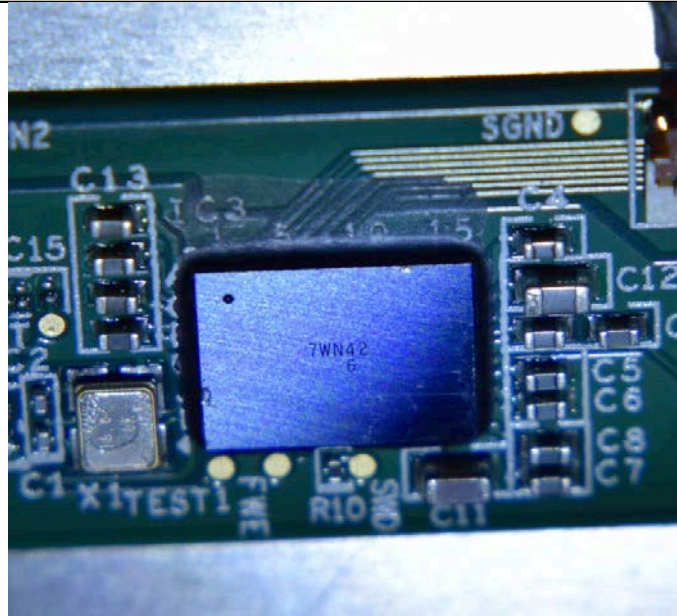


Photograph of the Dell Latitude 7389's processor.


Claim 16	Dell Latitude 7389																						
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Claim 16

Dell Latitude 7389



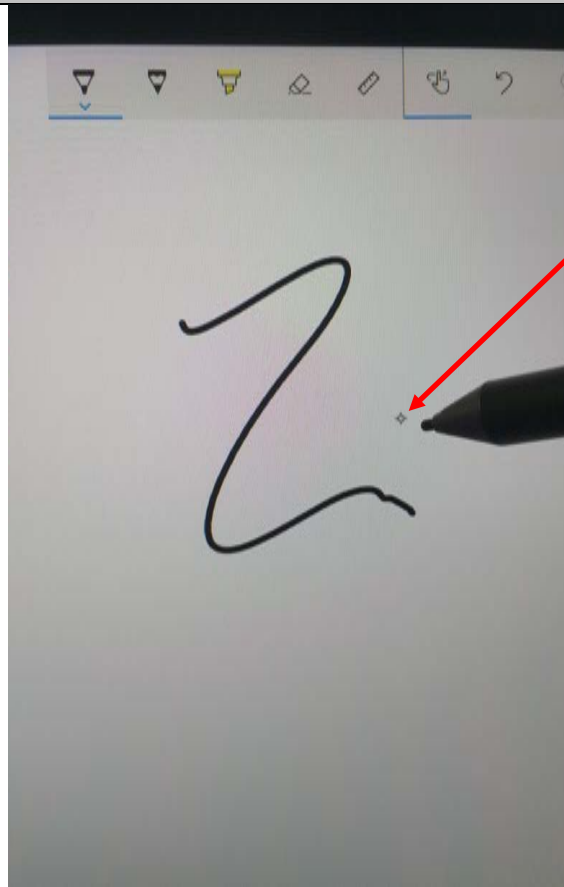
Photograph of the Dell Latitude 7389's touch controller.

Claim 16	Dell Latitude 7389
	 <p>Screenshot of the Dell Latitude 7389.</p>
<p>[d] determine, using a first detection threshold, whether the received signals are representative of a finger touch or a stylus touch; and</p>	<p>The Dell Latitude 7389's controller is configured to determine, using a first detection threshold, whether the received signals are representative of a finger touch or a stylus touch.</p> <p>For example, the Dell Latitude 7389's processor and/or touch controller causes a display of different results on the touchscreen depending on whether the received</p>

Claim 16	Dell Latitude 7389
	<p>signals are representative of a finger touch or a stylus touch, using a first detection threshold.</p>  <p>Screenshot of the Dell Latitude 7389 during a finger touch.</p>

Claim 16

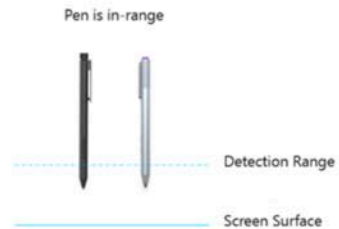
Dell Latitude 7389

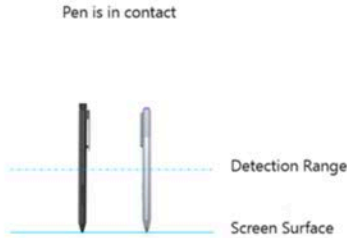


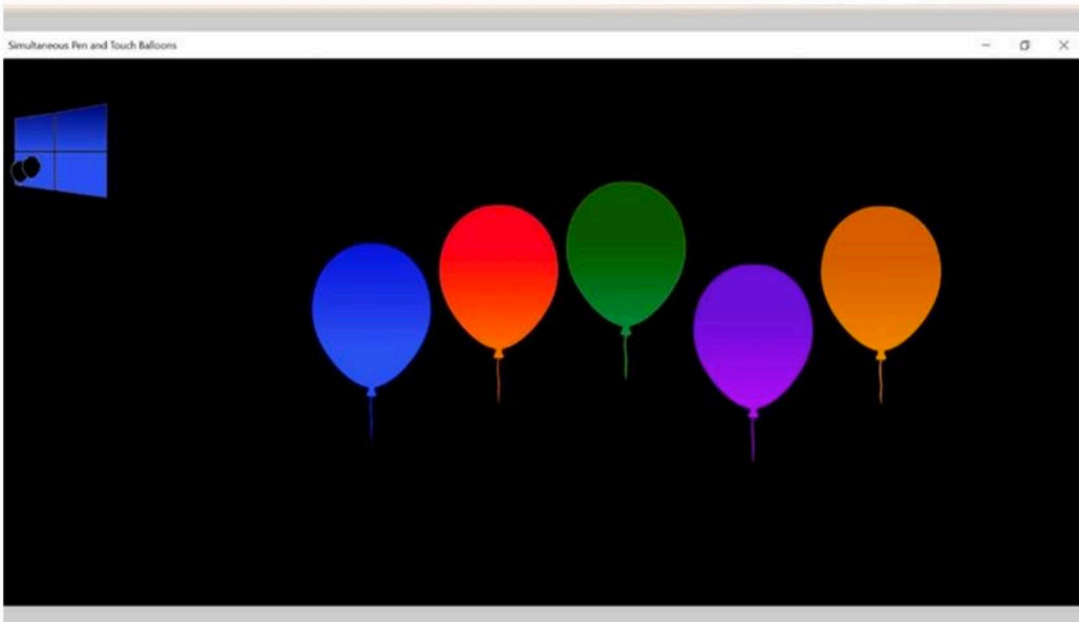
A cursor appears  
under stylus touch

Screenshot of the Dell Latitude 7389 during a stylus touch.



Claim 16	Dell Latitude 7389
	<p><b>In Range</b></p> <p>This is a common scenario for a Windows pen, and it occurs when the user is holding the pen within the detection range of the digitizer.</p>  <p>In this state (shown in the preceding diagram), input reports are continuously delivered to the operating system with the pen's location and the in-range switch SET. The operating system and applications can display a cursor or other feedback in response to the pen being in range.</p> <p><a href="https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/windows-pen-states">https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/windows-pen-states</a>.</p>

Claim 16	Dell Latitude 7389
	<p><b>In Contact</b></p> <p>This is the most common scenario for a Windows pen, and it occurs when the user is pressing the pen against the screen surface.</p>  <p>Pen is in contact</p> <p>Detection Range</p> <p>Screen Surface</p> <p>In this state (shown in the preceding diagram), input reports are continuously delivered to the operating system with the pen's location, the in-range switch SET, tip switch SET, and the corresponding tip pressure. The operating system and applications can lay ink, or perform other actions in response to the pen being in contact with the screen surface.</p> <p><a href="https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/windows-pen-states">https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/windows-pen-states</a>.</p> <p><b>Simultaneous pen and touch reporting requirements</b></p> <p>Currently, the Windows Hardware Compatibility Program does not contain requirements for simultaneous pen and touch performance. Microsoft instead provides the following recommendations for simultaneous pen and touch performance.</p> <ul style="list-style-type: none"> <li>• A device should continue to meet all Windows 10 Pen compatibility requirements when five simultaneous touch contacts are present on the screen.</li> <li>• A device should continue to meet all Windows 10 touch compatibility requirements when a pen is within reporting range of the screen.</li> </ul> <p>Devices capable of following these recommendations will be able to follow future requirements for pen and touch reporting</p>

Claim 16	Dell Latitude 7389
	<p> <a href="https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/simultaneous-pen-and-touch-validation">https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/simultaneous-pen-and-touch-validation</a>. </p> <p> <b>Simultaneous pen and touch balloons</b> </p> <p> You can also use the <a href="#">Simultaneous Pen and Touch Balloons App</a> developed by Blue Lan to determine if a system supports SPT. The app renders several floating balloons on the screen. </p>  <p> To validate SPT on the system, place a finger on a balloon to stop it, and then tap the stopped balloon with your pen. If balloon is popped by the pen, SPT is supported on the system. If the balloon moves or is not popped, SPT is not supported by the touch device's firmware. </p> <p> <a href="https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/simultaneous-pen-and-touch-validation">https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/simultaneous-pen-and-touch-validation</a>. </p>

Claim 16	Dell Latitude 7389
<p>[e] enter a detect mode as a function of the type of touch determined, the detect mode comprising a mode in which subsequent touches are interpreted with a second threshold that is lower than the first detection threshold;</p>	<p>The Dell Latitude 7389's controller is configured to enter a detect mode as a function of the type of touch determined, the detect mode comprising a mode in which subsequent touches are interpreted with a second threshold that is lower than the first detection threshold.</p> <p>For example, the Dell Latitude 7389's processor and/or touch controller causes a display of different results on the touchscreen after entering a detect mode as a function of the type of touch determined, the detect mode comprising a mode in which subsequent touches are interpreted with a second threshold that is lower than the first detection threshold. For example, when a stylus touch is determined, subsequent touches are interpreted with a second threshold that is lower than the first detection threshold, as shown by the resulting markings on the touchscreen.</p>

Claim 16

Dell Latitude 7389



Screenshot of the Dell Latitude 7389.

Claim 16

Dell Latitude 7389

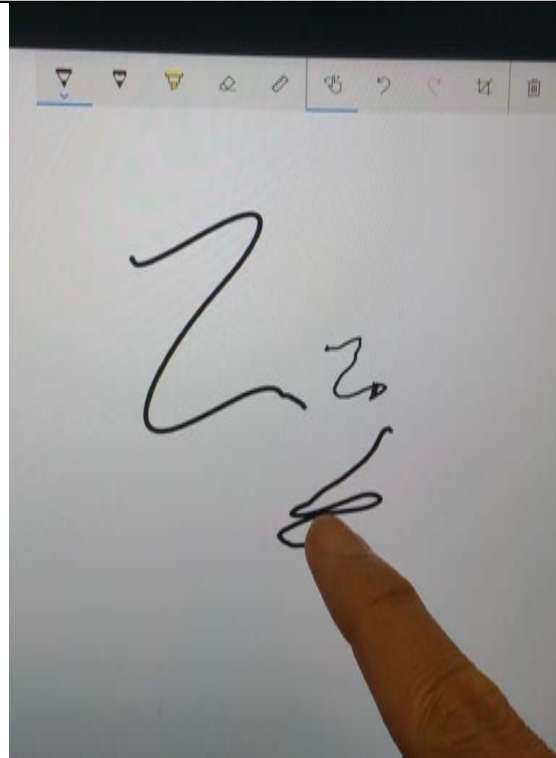


Screenshot of the Dell Latitude 7389.

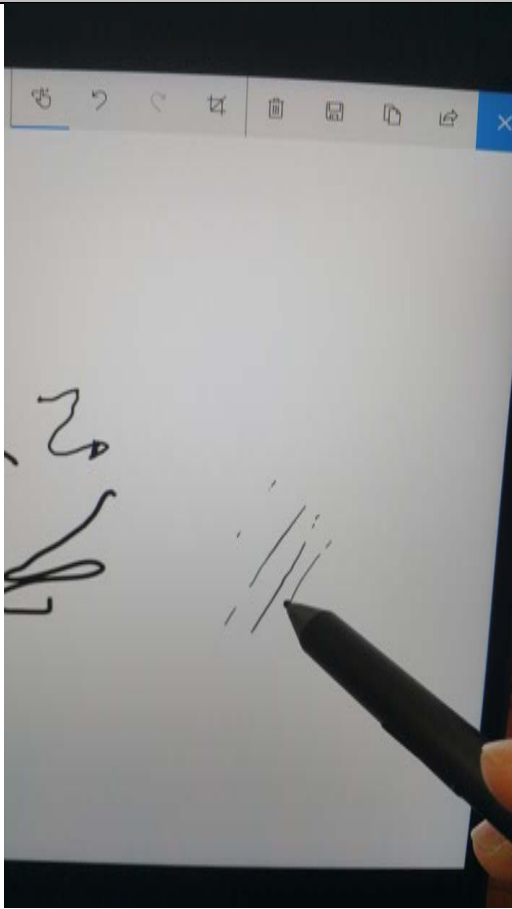


Claim 16

Dell Latitude 7389

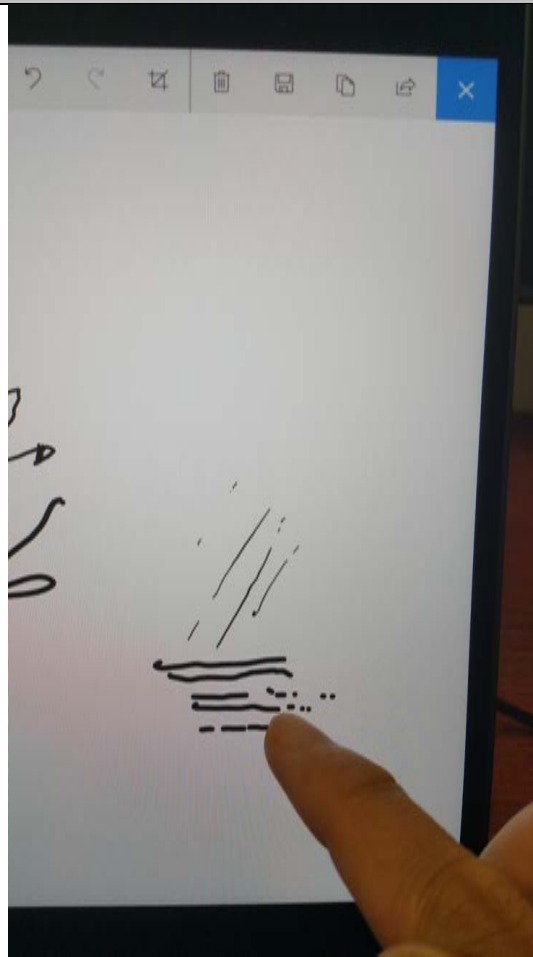


Screenshot of the Dell Latitude 7389.

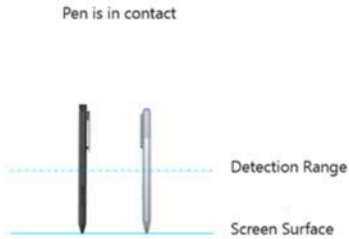
Claim 16	Dell Latitude 7389
	<div></div> <p>Screenshot of the Dell Latitude 7389.</p>

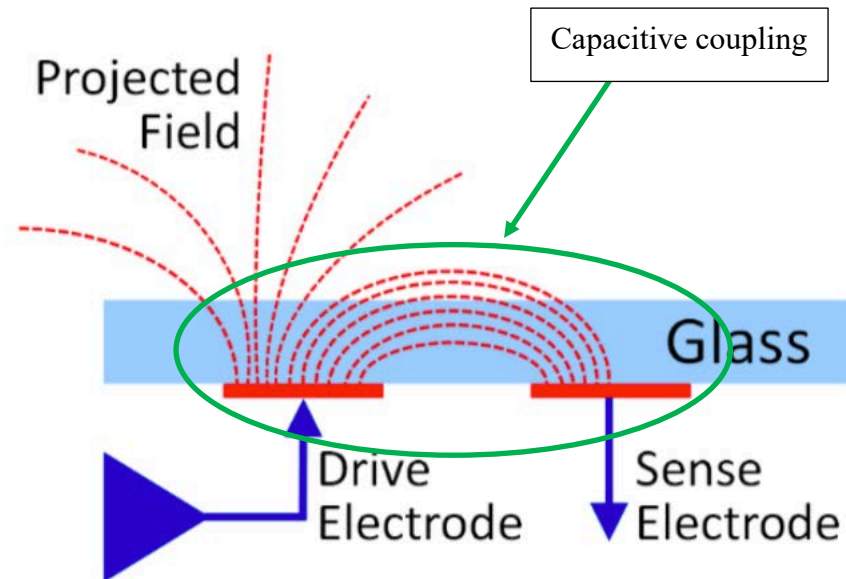
Claim 16

Dell Latitude 7389

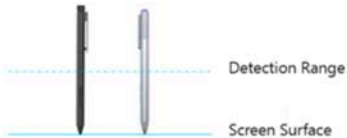


Screenshot of the Dell Latitude 7389.

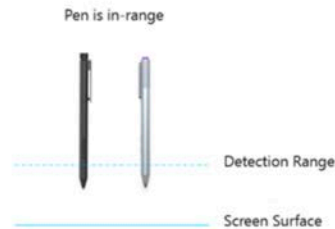
Claim 16	Dell Latitude 7389
	<p><b>In Contact</b></p> <p>This is the most common scenario for a Windows pen, and it occurs when the user is pressing the pen against the screen surface.</p>  <p>In this state (shown in the preceding diagram), input reports are continuously delivered to the operating system with the pen's location, the in-range switch SET, tip switch SET, and the corresponding tip pressure. The operating system and applications can lay ink, or perform other actions in response to the pen being in contact with the screen surface.</p> <p><a href="https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/windows-pen-states">https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/windows-pen-states</a>.</p>
<p>[f] wherein the first and second thresholds each represent a corresponding capacitance.</p>	<p>On the Dell Latitude 7389, the first and second thresholds each represent a corresponding capacitance.</p> <p>For example, for the Dell Latitude 7389's capacitive touchscreen and controller that functions with a finger touch and a capacitive stylus touch, the first and second thresholds each represent a corresponding capacitance, as shown below:</p>

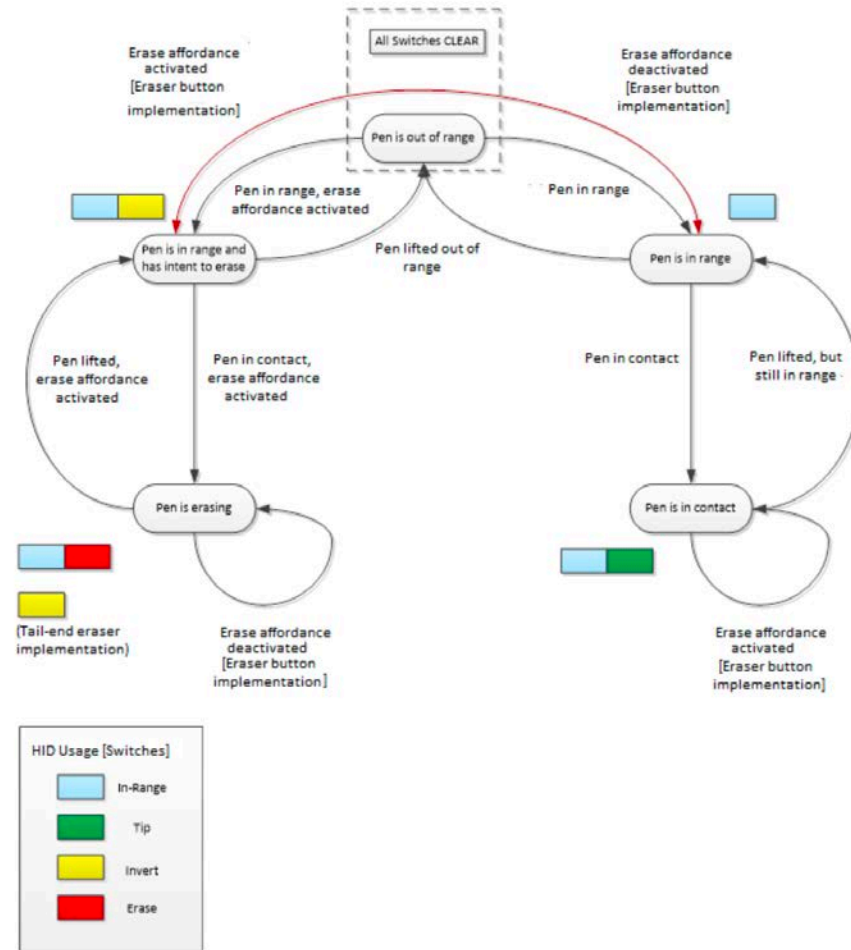


Representation of a capacitive touch sensor.

Claim 16	Dell Latitude 7389
	<p><b>In Contact</b></p> <p>This is the most common scenario for a Windows pen, and it occurs when the user is pressing the pen against the screen surface.</p> <div> <p>Pen is in contact</p>  </div> <p>In this state (shown in the preceding diagram), input reports are continuously delivered to the operating system with the pen's location, the in-range switch SET, tip switch SET, and the corresponding tip pressure. The operating system and applications can lay ink, or perform other actions in response to the pen being in contact with the screen surface.</p> <p><a href="https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/windows-pen-states">https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/windows-pen-states</a>.</p>



Claim 16	Dell Latitude 7389
	<p><b>In Range</b></p> <p>This is a common scenario for a Windows pen, and it occurs when the user is holding the pen within the detection range of the digitizer.</p> <div>  <p>Pen is in-range</p> <p>Detection Range</p> <p>Screen Surface</p> </div> <p>In this state (shown in the preceding diagram), input reports are continuously delivered to the operating system with the pen's location and the in-range switch SET. The operating system and applications can display a cursor or other feedback in response to the pen being in range.</p> <p><a href="https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/windows-pen-states">https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/windows-pen-states</a>.</p>



<https://docs.microsoft.com/en-us/windows-hardware/design/component-guidelines/windows-pen-states>